Dean’s Report

We are pleased to announce that we have appointed Mr Kieran Passmore as the new Director of Engineering Sydney. Kieran comes to us from the University’s Careers Centre although he has spent the last 10 months seconded to Railcorp. In both of these positions he has developed strong links with industry and we are looking forward to him continuing to develop and expand the Faculty’s industry partners. One of the first major activities he will be involved in is the 2006 Research Conversazione to be held on Friday 27th October. We are currently working to make this a bigger and better event than previous years. The School of Information Technology moved into the new building in Cleveland Street, immediately adjacent to Aerospace Engineering, in June. This gives us the opportunity to display the research work of the Schools of Information Technology and Electrical and Information Engineering in the new atrium spaces and wintergarden of this new building. It will provide an exciting new venue for the event.

The Faculties of Engineering, Architecture and the School of IT continue to develop areas where we can all work more closely together and develop academic synergies. Two areas of particular interest are the University-wide Institute of Sustainability where joint participation and sponsorship at a Faculty level can occur. The Institute of Information Technology is also seen as providing a platform for increased research profile and outreach from the same discipline areas in different Schools. Engineering, Architecture and IT also intend to explore ways in which their significant programs might find common ground, for example in a common first year, a separate Foundation year, or a general three-year first degree plus a range of two year vocational masters. This comes at a time when the Bologna protocols are being discussed at the highest levels in Australia. These protocols have been developed in Europe where universities will provide a 3 year generalist undergraduate program followed by a 2 year professional masters degree. The Federal Minister for Education, Science and Training, the Honourable Julie Bishop, has asked Australian universities to investigate the possibility of following these protocols. The Australian Council of Engineering Deans (ACED) and the Group of Eight (GO8) Engineering Deans have discussed these and are carrying out studies to determine their viability for professional engineering in the Australian marketplace.

The Department of Education, Science and Technology (DEST) has offered the Faculty additional places in the combined degrees for 2007. In 2006 the Faculty overenrolled these degrees that combine engineering with Commerce, Science, Arts and Medical Science and it is appropriate that we offer more places to students in these areas. Clearly our students want to undertake the 5 year combined degrees to get a broader and more enriching education.

Gregory Hancock, Dean of Engineering
The School of Information Technology moved into the new custom-designed smart building in June. Located in Cleveland Street, adjacent to the Seymour Centre, the five floor facility has been incorporated into the Engineering precinct. The School of IT will move from the Faculty of Science to the Faculty of Engineering in 2007. The new building includes 3 times the space of the building previously occupied by the school. Facilities include an L-shaped exhibition corridor with a gallery-style picture rail and lighting. Off the exhibition space are a number specialized research labs dedicated to visualization and high performance computing.
School of Information Technology

multimedia research, smart internet research, and advanced networks. There are several informal meeting spaces, equipped with interactive whiteboards and plasma screens for presentations. The academic floors have two wings that are connected by “social hubs” that provide coffee and tea making facilities and seating. There are open-plan work spaces for post-graduate students that are far superior to the fragmented workspace that they previously occupied. Five teaching computer rooms, a small lecture theatre and two levels of parking are also included.

The building includes a large server room that supports an extensive computing environment of more than 4000 users and approximately 900 terminals. Another feature is the chilled beam air-conditioning system, which operates by pumping chilled water through cooling elements in the ceiling. Hot air that rises from office space below is chilled and returned. The system is said to reduce energy consumption in a building by 20-30 percent.

It is hoped that the new building will help to build collaboration between the disciplines of Engineering and IT, including the opportunity to take combined degrees. It is also shows the university’s commitment to investing in teaching information technology. The building will be officially opened by Vice Chancellor, Professor Gavin Brown, on 12 September.
Kieran Passmore Appointed Director of Engineering Sydney

Kieran Passmore joined the Faculty of Engineering as Director of Engineering Sydney in August. Kieran has extensive experience in the tertiary education sector, particularly in the areas of careers counseling, event management and industry relationship management.

Kieran has recently returned to the University of Sydney from a 10 month secondment at the Rail Infrastructure Corporation where he worked in relationship management and marketing. Prior to this, Kieran was with the University of Sydney Careers Centre for 8 years.

Kieran looks forward to working with the Faculty of Engineering to foster improved industry linkages and to facilitate employment opportunities for students.

Kieran will direct Engineering Sydney in its endeavour to bring together alumni, industry, students and the Faculty.

Faculty of Engineering Research Conversazione 27 October 2006

Interested in seeing the latest research developments in your field?

Interested in seeing what our graduates have to offer?

Interested in building partnerships in research?

Or just interested in coming back to the University of Sydney?

The Faculty of Engineering Research Conversazione is an opportunity to do all of these.

The Conversazione will commence with a lunch in the Wentworth Building at 12.30 pm and will be followed by interactive research exhibitions in the Engineering and Architecture Faculties.

For further information please contact:

Kieran Passmore, Director Engineering Sydney on:
Phone: 02 9351 5768
Email: kpassmore@eng.usyd.edu.au

Or

Susanna Smith, Project Administrator on:
Phone: 02 9306 6571
Email: susanna@eng.usyd.edu.au
Dr Andrew Harris, lecturer in the School of Chemical and Biomolecular Engineering and Head of the Laboratory for Sustainable Technology, is undertaking research that has the potential to turn a field into a goldmine.

Phytomining is a process that works by enhancing the natural tendency of some plants to extract metals from ore rich soils. Dr Harris and his colleagues, Roza Bali and Guarin Owen, have developed a technique that enables plants to take up to 5% of their dry weight in gold when grown hydroponically. They are currently working on adapting the plants to do the same thing in metal rich soils.

Dr Harris is intent on seeing his work move from the research stage to become a commercially viable option for the mining industry and is already planning to license the technology.

“Wouldn’t it be better if you could just grow some plants on the ore, have them do the ‘mining’, harvest them and recover the gold?” asks Dr Harris. “If you could do this, at some stage in the future a gold mine might look like a forest or a farmer’s field instead of a waste dump.”

The phytomining process is one of many examples of “green engineering” being developed in the Research Laboratory for Sustainable Technology, a facility set up to undertake multidisciplinary research to develop sustainable products and processes that maximize resource and energy efficiency and minimize environmental impact. Dr Harris believes that the scientific breakthroughs of the future will come about because of multidisciplinary research – chemists, physicists, biologists and engineers working together to solve problems.

New Name

The former Department of Chemical Engineering is now the School of Chemical and Biomolecular Engineering. The new name was approved by the University Senate in 2006. The new title reflects the range of research and teaching activities undertaken by the school as well as the diversity of professional opportunities open to our graduates.
A group of University of Sydney Engineering students took out first place in the 2006 Association of Consulting Engineers Australia Bridge Challenge on Friday 11 August 2006. The competition was held in Martin Place in the Sydney CBD as part of Engineering Australia’s National Engineering Week.

Teams of Engineering students from universities across New South Wales took up the challenge to build the lightest bridge to hold a 3.75kg load midspan over a 2.4 metre span. The University of Sydney was well represented with several teams in the competition.

Christopher Wild (B.E. Civil Engineering (Structures), Joel Berger (B.E.Civil Engineering) and James Alcorn (B.E. Civil Engineering (Structures)) won the $2000 first prize with their 2.3kg bridge, a triangular prism beam structure. After successfully holding the designated load, the students waited to see how they fared in the weight stakes. At the end of testing they had produced the lightest bridge to withstand the load.
2006 Engineering Revue

After many months of hard work in preparation, the 2006 Engineering Revue took to the stage on August 18, 19 and 20 at a new venue – The Manning Bar.

Aptly titled V for Vic Bitter, the revue explored the daily life of engineering students through the medium of musical comedy.

Highlights included the Ballet (a masculine take on that timeless classic – Swan Lake – that included some well rehearsed fancy footwork.), Faculty Office and the musical lament From a Distance that included some amazing special effects.

The black and white film Night on the Town harked back to the days of silent films, complete with live musical accompaniment, to explore the current campus social scene.

Overall the revue was a great night out and the venue was perfect. Congratulations to all involved, especially Producer Winey Suen and Directors Stuart Auld and David Wood.
Engineering innovator, Dr Don Fry, AO, left audiences amused and inspired at the Warren Centre’s Annual Innovation Lecture in Melbourne on June 7 and Sydney on June 8. His rousing speech brought to mind a boy’s own adventure. “From an early age, I was continually building model boats and aeroplanes - they were all working models which achieved varying degrees of success.”

According to Don, it is the process of “converting childhood dreams into reality” that is the basis of real innovation. As a child Don set his sights high. “I attempted to be the first to arrive at school on a jet-propelled bicycle,” As he grew older, Don’s ambitions grew and he started experimenting with old aeroplane engines, attempting to build a turbojet engine from a World War II aircraft turbocharger. “The project came to an abrupt halt as my father found me installing the unit in the back of his Morris Cowley utility.”

Don started working for his father’s Cairns-based engineering company, NQEA (later to become AIMTEK, specialising in research and development, design, manufacture and project management across the aerospace, industrial, mining and marine industries), and completed his Diploma in Mechanical and Electrical Engineering. After revolutionising machinery used in Queensland’s mining and agriculture industries, Don rekindled his early love of boats. AIMTEK became a preferred producer of luxury cruisers, tourist vessels and passenger ferries. The company has built more than 225 vessels. In 1985 Don entered a partnership with the University of Queensland to develop Scramjet engines (supersonic combustion ramjet engines) designed to propel aircraft at hypersonic speeds.

Don encourages young engineers to “Take every opportunity to learn and don’t stop trying to experiment and learn more,”... “Research the things you find interesting. Something good will always emerge, even if far from the objective.”
School of Electrical and Information Engineering

New Appointments in Computer Engineering

Professor Vojin Oklobzija and Dr Bart Zeydel have recently joined the Faculty of Engineering in the School of Electrical and Information Engineering. Professor Oklobzija is a Chair Professor and will be heading Computer Engineering in the School. Both bring a wealth of industry and research experience, mostly in the area of very large scale integrated circuits, to the faculty. As well as bringing their established research, Professor Oklobzija and Dr Zeydel are looking forward to adapting it to the needs of the Australian industry.

Both have come from the University of California, attracted by the opportunity to develop computer engineering within the School of Electrical and Information Engineering and enthusiasm shown by the Dean. They plan to stimulate the growth of Australian industry through the establishment of start-up companies that will hopefully lead to further industry growth and development.

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Professor Oklobzija and Dr Zeydel are planning to establish a strong Masters and Doctoral program within the school that includes a business component. The plan is to help students develop business skills to complement their engineering education which will lead to innovation and industry growth. They plan to work in collaboration with the Warren Centre for Advanced Engineering and the Electrical and Information Engineering Foundation to encourage innovation and excellence and to establish industry links and raise capital. Professor Oklobzija believes that Australia's harsh physical environment has encouraged people to be creative and innovative and it is this spirit that he is hoping to tap into and foster. He also recognizes the importance of Australia's position within the Asia-Pacific region. The Asia-Pacific region is the only region of the world experiencing growth and this offers potential to the school as a provider of education and for development of the Australian industry. The demand in the region for higher education offers potential to establish international programs including distance learning and collaborative agreements. Hopefully the demand for education will have a follow-on effect to the industry by encouraging graduates to start companies.

In the area of research, Professor Oklobzija and Dr Zeydel will focus on the needs of Australia, particularly in the area of medicine, health management and biotechnology.

Professor Vojin Oklobzija

is an IEEE Fellow and Distinguished Lecturer of the IEEE Solid-State Circuits Society. He has served as a consultant to companies such as Sun Microsystems, Bell Laboratories, Hitachi, Fujitsu, Sony, Intel, Samsung and Siemens. He holds 14 US, 7 International and 5 other patents pending. Prof. Oklobzija serves as associate editor for the IEEE Transactions on Computers, IEEE MICRO, IEEE Transactions on Circuits and Systems II and Journal of VLSI Signal Processing. Prof. Oklobzija has published more than 150 papers, four books and dozen of book chapters in the areas of circuits and technology, computer arithmetic and computer architecture. He has given over 150 invited talks and short courses in the USA, Europe, Latin America, Australia, China and Japan.

Dr Bart Zeydel

After completing his B.S in Computer Engineering from the University of California, Davis, Dr Zeydel worked at Mentor Graphics, Fujitsu Microelectronics and Telarity before completing his PhD. His research focused on the design of energy-efficient digital circuits and the design of improved datapath elements.
**Awards and Honours**

**Member of the Order of Australia (AM) - Queens Birthday Honours List**
Professor Greg Hancock, Dean of Engineering, was made a Member of the Order of Australia (AM) for service to engineering as a contributor to the development of industry standards, particularly in relation to cold-formed steel structures, through research roles relating to the behaviour and design of thin walled structures, and as an educator.

**IEEE Distinguished Contributions to Satellite Communication Award.**
Professor Abbas Jamalipour from the School of Electrical and Information Engineering has been selected for this award which is given annually to an active researcher for distinguished contribution to the field of satellite ad space communications over a period of years. The award will be presented at the IEEE Globecom event in San Francisco in November.

**Shedden Uhde Medal and Prize**
Dr Andrew Harris, of the School of Chemical and Biomolecular Engineering, will receive this prize at an awards dinner in Auckland in September. The Shedden Uhde Medal and prize is awarded for the most outstanding contribution to the profession by an engineer under the age of 40 by the Institute of Chemical Engineers and Engineers Australia.

**ARC Linkage Success**
Dr Javid Atai, School of Electrical and Information Engineering for “A Novel Optical Network Security and Encryption Device” with Soliton Network Consulting. $99,000 2006-2009

Dr Dong-Sheng Jeng, School of Civil Engineering for “Port Stephens Flood Tide Delta: Shoreline Management Issues” with a range of Council and Industry Partners including the NSW Department of Natural Resources. $371,000 2006-2009.

Professor Liangchi Zhang, School of Aerospace, Mechanical and Mechatronic Engineering for “Novel Cutting Picks for Mining Industry and an Australian Standard” with Age Mining Services $300,000 2006-2009

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**Calendar of Events**

**September**

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<th>Date</th>
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| 13   | Computing the Future Symposium  
School of Information Technology  
Everest Theatre, Seymour  
Centre, Corner of City Rd and Cleveland St, The University of Sydney  
Cost: $150; $100 for Members of Supporting Associations & Post-Graduate Students  
Contact : 02 9423 8850 |

**October**

<table>
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<th>Date</th>
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| 27   | Research Conversazione  
Faculty of Engineering  
Kieran Passmore, Director Engineering Sydney on:  
Phone: 02 9351 5768  
Email: kpassmore@eng.usyd.edu.au  
Or  
Susanna Smith, Project Administrator on:  
Phone: 02 9306 6571  
Email: susanna@eng.usyd.edu.au |
Alumni in Profile

Nicholas Voudoukis, Bachelor of Engineering (Electrical) 1988

University of Sydney engineering graduate, Nicholas Voudoukis (BE Electrical 1988) and his colleagues at Smart Car Technologies, have been awarded a Commercialising Emerging Technologies grant by the Federal Government for their breakthrough solution to speed management SpeedAlert.

SpeedAlert alerts drivers to prevailing speed limits via their mobile phone or PDA. The system works using a digital database of Sydney’s speed limits with satellite-based GPS navigation technology. A GPS receiver is placed on the car dashboard and communicates with the PDA via a Bluetooth wireless connection. SpeedAlert monitors the vehicle’s speed and location and emits a series of audible warnings to alert the driver if speeding is detected. It automatically adapts to times when school zones are active.

SpeedAlert operates unobtrusively and continuously as the vehicle is driven, allowing drivers to manage frequently changing speed limits and maintain concentration while driving.

On awarding the grant, Federal Industry Minister Ian MacFarlane said “It’s a clever idea and a good example of how the Federal Government is backing Australia’s natural flair for innovation and invention to ensure it translates into new Australian products, jobs and exports.”

SpeedAlert could also save lives. Australian vehicle design engineer and traffic safety consultant, Michael Paine, analysed SpeedAlert and said that he was “very enthusiastic” about the potential of the device to prevent injury and death as research shows that 40% of traffic fatalities involve speeding.

Your alumni email forwarding service now allows you to link your private email address to a University alumni email address:

Yourname@alumni.sydney.edu.au

Email forwarding is just one of the many services available via the Alumni Web Community.

The University of Sydney

www.usyd.edu.au/alumni
Deans Advisory Committee

Professor Gregory Hancock AM  Dean
Professor John Small  Pro Dean
Professor Brian Haynes  Associate Dean Research
Professor Liangchi Zhang  Associate Dean Postgraduate
Professor Liyong Tong  Director of the Graduate School of Engineering
Dr Doug Auld  Associate Dean International
Dr Marjorie Valix  Associate Dean Undergraduate
Dr Tim Wilkinson  Associate Dean First Year T&L
John Currie  Associate Dean Teaching and Learning

Professor Lin Ye  Head of School Aerospace, Mechanical and Mechatronic Engineering
Associate Professor David Levy  Head of School Electrical and Information Engineering
Professor Albert Zomaya  Head of School of Information Technology
Professor Kim Rasmussen  Head of School of Civil Engineering
Associate Professor Geoff Barton  Head of School of Chemical and Biomolecular Engineering

Professor Hugh Durrant Whyte  Director Australian Centre for Field Robotics
Associate Professor Chris Stevens  Director Project Management Graduate Program
Professor Ron Johnston  Director Australian Centre for Innovation and International Competitiveness Limited

Eric van Wijk  Faculty Executive Officer
Michael Whitley  Secretary to the Faculty and Faculty Finance Manager

Presidents and Executive Officers of Foundations and The Warren Centre

Professor Michael Dureau  President Electrical and Information Engineering Foundation
Stuart Glanfield  Executive Director Warren Centre for Advanced Engineering
Ian Frew  Executive Officer Electrical and Information Engineering Foundation
Irene Scott  President Chemical Engineering Foundation
John Young  President Civil Engineering Foundation

Peter North AM  President of the Aerospace, Mechanical and Mechatronic Engineering Foundation

Change of Address/Details

Please let us know if you have changed address, telephone number or email or job so that we can update our records and keep you up-to-date with Engineering Sydney information.

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University of Sydney  NSW  2006
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Name_________________________________________ Degree and Year ______________________________________
Address________________________________________________________________________________________
Telephone (home)_____________________ (work)_______________________ (mobile)____________________________
Job Title________________________________Organisation__________________________________________________

Email Address________________________________________________________